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ABSTRACT

An inquiry was conducted into the question of the influence of Christmas and Easter on the occurrence of death. The authors hypothesized that dying might be postponed until after these two important events resulting in a significantly increased frequency of death after these holidays. Obituaries were read for 4 weeks before and 4 weeks after each holiday for 6 alternate years beginning in 1960 and ending in 1970. Chi square analyses were calculated for each week. The results indicated a significant peak two weeks after Christmas (p less than .05). The Easter data did not corroborate the author's hypothesis. (Author)

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# THE HOLLOW HOLIDAY:

## Christmas, a Time of Death in Appalachia[1]

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## I. Introduction

The present study was an inquiry into the question of the influence of psycho-social events on the occurrence of death. That is, knowing certain demographic variables, can a person's death be determined? Or knowing what events a person believes are personally significant, can his death day be predicted? The authors think it is possible and have investigated this phenomenon in the present study. Certain historical evidence has suggested this is the case. For example, of the first four presidents of the United States, only one, George Washington, did not die on July 4th. Not surprisingly, all three of these men were signers of the Declaration of Independence. Similarly, Sigmund Freud died just after Yom Kippur, the Jewish Day of Atonement.

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One researcher who concurred with this idea is David Phillips, (1970, 1972) who felt that certain events were significant enough to Jews to cause their postponing death until after the occurrence of Yom Kippur. In an investigation of the occurrence of death in the Jewish populations of New York City and Budapest, Phillips hypothesized that in the months preceding Yom Kippur there would be a significant decrease in death of Jews. Phillips' rationale was that a Jewish population would postpone death in their anticipation of this important holiday. He found that in both New York City and Budapest there was a statistically significant decrease in death rathes in the Jewish populations in the period of time prior to Yom Kippur. Phillips referred to this as the "death dip" (1972).

Phillips' work strongly suggests that Jews postpone dying until after significant events, such as Yom Kippur. What the authors hoped to demonstrate, similar to Phillips, is that people postpone dying, but further they would suggest that there is an increase in death rates after culturally significant events, such as religious holidays.

II. Design

As the culturally significant dates, the authors selected Christmas and Easter in a generally rural Appalachian region, hypothesizing that these events were sufficiently significant for some people to postpone dying until after holiday. Using the obituary section of the Clarksburg Exponent -- a daily newspaper from central West Virginia -- deaths were tabulated by week for four weeks prior to and four weeks after the holiday week, i.e., Christmas week and Easter week. This was done for 6 alternate years beginning in 1960 and ending in 1970. The Clarksburg Exponent was selected because it serves a

large central West Virginian population, and because it gives great detail to its obituary notices. All accidental deaths and those labeled suicide by the newspaper were excluded as were infant deaths. The obituaries were coded according to sex, marital status, age, length of illness and decedent's residence. In all there were 2745 subjects for Christmas and 2648 for Easter.

Frequency of deaths per week was tabulated for total deaths and then the data were subdivided into marital status, sex, length of illness, age and decedent's residence, and then the frequency of deaths per week were again tabulated for each of these variables, as well as for every combination of these variables. These frequencies were used to compute two cell chi squares for each week for all the frequencies.

While in any research in which a large number of statistical tests are run, a certain number are expected to be significant by chance; the patterns of occurrence of statistical significance were closely examined in this study. If, among 4590 chi square tests, 45 were significant at the .01 level, according to chance, these should be randomly distributed throughout all the weeks. If the hypothesiswas to be supported, however, the significant findings should occur during a specificable period of time, i.e., immediately following the holiday week.

## III. Results

The results indicate that for Christmas, there was a statistically significant increase for the entire population two weeks after the significant holiday ($p < .05$). Subdividing the data into demographic variables the variable found to be the best predictor was the population of decedent's residence. Those subjects living in towns of less than 2000 population

evidenced an increase in death rates two weeks after Christmas ($p < .01$; $N = 1441$) while those subjects living in cities of between 10,000 and 80,000 population died 1 week after Christmas ($p < .01$; $N = 552$). While age, sex, marital status and length of illness were not significant at the .01 level of significance, they were significant at the .05 level of significance suggesting that there is in this sample a statistical pattern of increased death rates following Christmas.

Partitioning the data into the smallest units possible, yet retaining the minimum of 45 subjects necessary to run the chi square tests, some interesting results were found. Single women who lived in small towns (population of less than 2000) and who had been ill an unspecified length of time statistically demonstrated a very strong tendency to die in the second week after Christmas ($p < .001$; $N = 127$). Single women living in large towns (population from 10,000 to 80.000) and who had been ill less than six months had an increase in death rates during the week after Christmas ($p < .01$; $N = 92$). Other results for Christmas can be seen in Table 1. While further conclusions should be made with caution, it is both interesting and important to note the patterns of significance in the data. The statistical peaks are consistent with the hypothesis.

Similar calculations were carried out for Easter. While the Easter data did not corroborate the hypothesis of increased frequency of dying occurring after the holiday, it did suggest that this holiday might have some influence on death rates. There was a statistically significant increase in rates of death ($p < .05$) during the week <u>before</u> Easter -- the week after Palm Sunday. For complete results, see Table 2.

Table 1

Christmas Deaths

| Population Characteristics | week 1 | week 2 | week 3 | week 4 | week 5* | week 6 | week 7 | week 8 | week 9 |
|---|---|---|---|---|---|---|---|---|---|
| All deaths N = 2745 | | | | | | | .05[1] | | |
| Population I (towns less than 2000 population) N = 1441 | | | | | | | .01 | | |
| Single subjects N = 680 | | | | | | | .01 | | |
| Unknown length of illness N = 408 | | | | | | | .01 | | |
| Brief length of illness, 50-59 years N = 66 | | | | | | .01 | | | |
| Single, unknown N = 185 | | | | | | | .001 | | |
| Women, single, unknown N = 127 | | | | | | | .001 | | |
| Women, married, unknown N = 83 | | | | | | | | .01 | |
| Men, 50-59 years N = 57 | | | .001 | | | | | | |
| Men, single, 70+ years N = 58 | | .01 | | | | | | | |

* Christmas week

[1] The values found in this table refer to the upper limits of the probability values, e.g., .05 refers to $p < .05$.

Table 1 (continued)

| Population Characteristics | week 1 | week 2 | week 3 | week 4 | week 5* | week 6 | week 7 | week 8 | week 9 |
|---|---|---|---|---|---|---|---|---|---|
| Population II (towns between 2000 and 10,000 population) | | | | | | | | | |
| Women, unknown N = 99 | | | | | | .005 | | | |
| Separated, 70+ years N = 53 | | | | | | | | | .01 |
| Population III (towns between 10,000 and 80,000 population) N = 552 | | | | | | .01 | | | |
| Women N = 301 | | | | | | .005 | | | |
| Women, single N = 164 | | | | | | .01 | | | |
| Women, single, less than six months illness N = 92 | | | | | | .01 | | | |
| Women, single, 70+ years N = 68 | | | | | | | .005 | | |
| Married, over six months illness N = 92 | | | .01 | | | | | | |
| Single, unknown, 60-69 years N = 74 | | | | | | | .005 | | |
| Women, unknown, 60-69 years N = 83 | | | | | | | | .005 | |

* Christmas week

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Table 2

Easter Deaths

| Population Characteristics | week 1 | week 2 | week 3 | week 4 | week 5* | week 6 | week 7 | week 8 | week 9 |
|---|---|---|---|---|---|---|---|---|---|
| All deaths N = 2648 | | | | .05[1] | | | | | |
| Population I (towns less than 2000 population) | | | | | | | | | |
| Married N = 591 | | | | | | .005 | | | |
| Married, women N = 223 | | | | | | .001 | | | |
| Less than six months illness, 60-69 years N = 106 | | | | .005 | | | | | |
| Married, unknown length of illness N = 186 | | | | | | | .01 | | |
| Single, men, less than six months illness N = 90 | | | | .01 | | | | .01 | |
| Single, men, unknown N = 53 | | | .01 | | | | | | |
| Married, men, unknown N = 118 | | | | | | | .001 | | |

* Easter week

[1] The values found in this table refer to the upper limits of the probability values, e.g., .05 refers to $p < .05$.

Table 2 (continued)

| Population Characteristics | week 1 | week 2 | week 3 | week 4 | week 5* | week 6 | week 7 | week 8 | week 9 |
|---|---|---|---|---|---|---|---|---|---|
| Married, women, 70+ years N = 74 | | | | | | .001 | | | |
| Married, women, less than six months illness N = 83 | | | | | | .001 | | | |
| Single, women, unknown N = 144 | | | | | .005 | | | | |
| Married, 70+ years N = 516 | | | | | | .005 | | | |
| Population II (towns between 2000 and 10,000 population) | | | | | | | | | |
| Single, unknown N = 70 | | | | | | | | | .01 |
| Married, unknown N = 81 | | .005 | | | | | | | |
| Single, men, less than six months illness N = 46 | | | | | | | | | .005 |
| Married, men, unknown N = 50 | | .005 | | | | | | | |
| Population III (towns between 10,000 and 80,000 population) | | | | | | | | | |
| Married N = 150 | | | | | .005 | | | | |

* Easter week

Table 2 (continued)

| Population Characteristics | week 1 | week 2 | week 3 | week 4 | week 5* | week 6 | week 7 | week 8 | week 9 |
|---|---|---|---|---|---|---|---|---|---|
| Married, 70+ years N = 144 | | | | | .005 | | | | |
| Single, women, over six months illness N = 54 | | | | | .001 | | | | |
| Married, women, 70+ years N = 51 | | | | | .005 | | | | |
| Married, women, 70+ years N = 325 | | | | | | .01 | | | |
| Single, men, 50-59 years N = 76 | | | | | | | | | .001 |
| Married, men, unknown N = 188 | | | | | | | .005 | | |
| Single, women, less than six months illness, 70+ years N = 220 | | | | | | | | | .005 |

* Easter week

## IV. Discussion

Several conclusions can be suggested from the results. First, increases in the frequency of deaths after Christmas seemed to occur among those people without familial ties, especially single women. Perhaps what was really being assessed in this study is the strength or psycho-social significance on familial ties. Holidays such as Christmas in this culture are very family-oriented and furthermore, Christmas is a holiday which seems to strongly influence patterns of death in this population.

Secondly, one of the surprising findings was the unimportance of age as a predictor of these patterns of death. Age failed to relate to the other variables and in this population it was a poor predictor of death. The population of the decedent's town or city of residence seemed to be the best predictor of increased frequency of dying at the .01 level. Further if the level of significance was lowered to .05 such variables as marital status (single $p < .025$, $N = 1278$; separated $p < .05$, $N = 314$), and length of illness (brief $p < .05$; $N = 1209$) were better predictors of death patterns than was age. However any conclusions should be made with caution due to the relatively small number of subjects, the interdependency of the data and the increased chance of Type I errors occuring. Conservative conclusions are in order.

However, for the moment the authors would ask that they be permitted some liberal speculation. They feel that these data strongly suggest, as did Phillips' New York City and Budapest data, that people somehow alter the timing of their "natural" deaths. Further, in a relatively homogeneous culture, such

as the central West Virginia area of Appalachia, these alterations assume statistically, visible, patterned forms - forms which are created by identifiable subgroups, such as single women.

If the authors are correct in their speculation, the implication for West Virginia social policy and mental health intervention are very important. The knowledge that death rates are going to increase in specific and identifiable groups during specifiable periods of time is also knowledge which can guide psycho-social intervention efforts with those same groups -- perhaps saving lives. However, it means that society must assume the position that life is valued sufficiently to save it, and that it is willing to devote resources to this kind of ecological intervention.

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